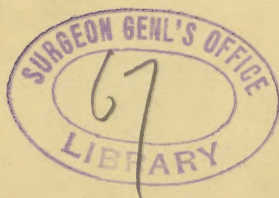
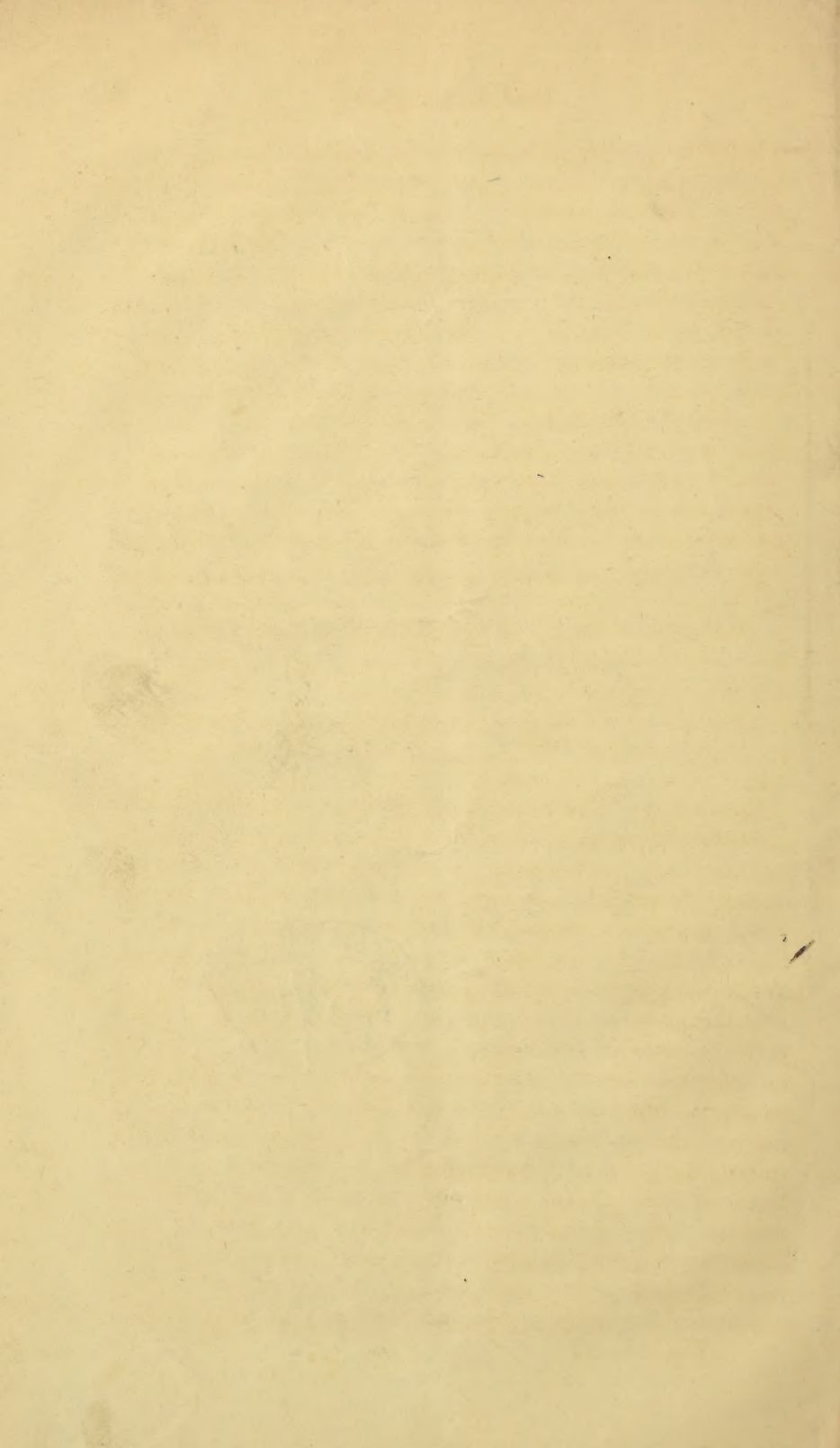


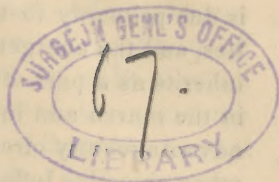
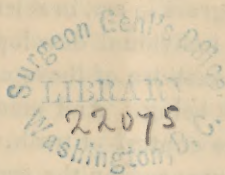
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KNOWLEDGE THE ONLY GUIDE TO ACTION.

An Address to the Graduates of the St. Louis Medical College : Delivered February 28th, 1857, by Professor J. H. WATTERS, M.D. [Published by request of the Class.]

[From the St. Louis Medical and Surgical Journal, of May, 1857.]

GENTLEMEN—With no ordinary feelings of pleasure I congratulate you on this honorable termination of your pupilage, and auspicious commencement of professional life. Having chosen the medical profession as your vocation, the present occasion marks one goal reached, but it equally marks the commencement of another stage of the race just begun. While the present is the legitimate offspring of the past, it is also the germ of the future; and the future is determined more by present development and intrinsic energy than by any extrinsic conditions or outside influences. A man may be almost what he will, if he will but use the means. We are born human beings without our wills, and we must die in spite of our wills; but between these two epochs much is optional,—much depends upon our own volition and individual action. It is a thing more to be desired than riches or than hereditary position, that a man just entering upon life should personally realize how much he holds in his own hands,—how much he is legitimate heir to, independently of all contingen-

cies, simply in virtue of his nature as a free and intellectual human being. All progress in art, in science, and in literature, is due primarily to the individual development of those faculties, and the energetic exercise of those capacities, which man inherits as a part of his being. And many of those foremost in the march and in the contest of truth, have been men least advantageously circumstanced by the accidents of fortune or other objective influences. There is nothing to discourage an ingenious youth from the noblest daring save inherent cowardice.

It is the want of a fixed purpose, self-reliance, and energetic action that necessitates failure, and not accident, fate or evil fortune. This is frequently learned in time only to beget regret, rather than to inspire courage. Content as lifeless sounding-boards, many learn not till their individuality and spontaneity are lost in the popular noise that they might have assisted in quieting the babbling discord, and themselves have given utterance to sounds more in harmony with the sweet music of nature;—

“How many a rustic Milton has passed by,
Stifling the speechless longings of his heart,
In unremitting drudgery and care!
How many a vulgar Cato has compell’d!
His energies, no longer tameless then,
To mould a pin, or fabricate a nail!
How many a Newton, to whose passive ken,
Those mighty spheres that gem infinity,
Were only specks of tinsel, fixed in heaven,
To light the midnights of his native town!”

In the study of the sciences connected with our profession, there is a fascination which those only who experience it can realize. From the wonderful constitution of the human mind, a man may have a sort of pleasure in any position or occupation, if it accord with his capacity; from the negro with his tamborine and the emulation of a corn-shucking, through every degree up to Humboldt in the grand contemplation of the cosmos; from the hod-carrier, who toils day by day that he may live to toil on, up to Fulton, Watt and Morse, who, by their effective geniuses, have made the dumb agents of nature conspire to their ends. All have their pleasures and their sorrows, different however in degree, according to the respective developments of their minds. The physician, if he be enthusi-

astic in his calling, will find in the duties of his profession sources of indefinite pleasure. Who is there whose mind is at all cultivated that does not derive a corresponding pleasure in studying a good painting, or fine piece of sculpture, or nicely adjusted machinery, or any work of art, as he receives the conceptions, the ideas and the thoughts of the artist expressed and personified in his work,—human thoughts, human ideas, and human conceptions taking on form? The antiquarian, eager in his pursuit, studies night and day the records of ancient times, delighted with the anticipation to him all-absorbing, and encouraged by partial success, of bringing to light the thoughts, works and actions of his fellow-man of remote ages. The archeologist finds pleasure in studying the inscriptions upon old and crumbling monuments, and feels a thrill of rapture as he finds a key to their interpretation. But the physician is a student of Nature, the monument of God; and shall he not feel an untold delight as he finds a clue to the characters there inscribed, not by man, but by the finger of the Eternal *causa causarum*,—characters which are the expressions of infinite knowledge, the embodiment of the Divine conception? The book of Nature, full of thought, not a particle without its purpose and signification, is opened, loudly calling for interpreters. The human mind gives enthusiastic response, and man's physical condition is improved by the revelations of science.

But I do not propose, gentlemen, in taking leave of you, to dwell upon the beauties of Nature, nor upon the pleasures afforded the human mind in studying her unchanging laws, but rather to direct your attention to knowledge as the only guide to successful action. Action, energetic action, is demanded of him who has an object in living, and an end to accomplish; of him who is unwilling to be tossed among whirlpools on the sea of life merely by the current of chance, without oar or rudder; and remember, the oar and the rudder are equally apt to hasten to that which would be avoided except their action be guided by knowledge. It is the great secret of failure, that few stop to reflect how awfully hazardous their very freedom to act and to mould themselves as they please, renders their position. Freedom of action is useless, and even dangerous, unless knowledge and caution be commensurate

with freedom. This is true of every action in the range of man's voluntary power, but it is of especial force in connection with the actions the physician is called upon to perform. The freedom of your little barque to move this way or that indifferently, while it renders the gaining of almost any desirable harbor possible, makes destruction probable unless intelligently guided.

The mechanic, the architect, the farmer, the merchant, or the general, was not born such. Who does not know that each must study till he acquire a knowledge to guide the actions pertaining to what he undertakes? In every trade, each man's work corresponds with the knowledge he possesses pertaining to his business. The art of healing is no exception to this universal rule, that knowledge is the only guide of voluntary action to useful ends. Physic has no discretionary power; our pills, and powders, and drops, would about as leave kill as cure. A sharp razor is good to shave with, but it would not hesitate to cut your throat if so directed by the hand of an assassin. The only place for discretion and judgment is in the administration; the physician is voluntary, and if he have not knowledge and caution to correspond, his very freedom makes it a sad thing to fall into his hands. I say knowledge and caution to correspond—caution to restrain where knowledge fails to guide. He who knows most, most knows his ignorance, and he who knows his ignorance is most cautious. Only those whose minds are most cultivated, realize that they have gathered but a few pebbles upon the shore of knowledge, while the great ocean of unexplored truth is spread before them; but the school-boy who can read and write, and perhaps cypher as far as the rule of three, imagines himself almost a little god. "Devils venture where angels fear to tread." The reckless madman might perchance cross the river on floating ice safely, by jumping from cake to cake; so the heartless quack might produce a wonderful cure by chance or accident: this is heralded to the world, and many good citizens intrust their lives in the hands of him whose recklessness, engendered in ignorance, is the only claim to their confidence. Though these same persons could not be led by the madman on cakes of floating ice, for they know if they sink the penalty of violated law must be paid; thus far

they see that the laws of nature are inexorable. Men in the various pursuits of life may be well acquainted with the conditions to be fulfilled and the indications of action in their respective vocations,—they may be well acquainted with history and general literature, and yet take little thought of the organization of their own bodies—the functions the different organs have to perform in the general phenomena of life. They know that if their watch does not keep time, there is some *physical* derangement, yet they have not so clear a conception that the same is true of the human organism; that every molecular change, every vital phenomenon in health or in disease, is determined by physical conditions in accordance with law as inexorable. They have only an indistinct idea, insufficient for all practical purposes, that disease depends upon deranged physical conditions quite as much as do the irregular actions of their time-piece. Actions show how inoperative this truth is in the popular mind. While none would attempt to adjust their watch when out of order, unless they knew something of its mechanism and conditions of action, lest they might do more harm than good, many, as ignorant of anatomy and physiology, would not hesitate to give physic to their sick child. Yet we do not doubt their child is *quite* as near their hearts as their watch is, though it were set with never so many precious diamonds. They do not stop to reflect that the truth is applicable to the human organism and to the laws of organic life, that whatever drug is capable of doing any thing is capable of doing harm, and requires knowledge to guide in the administration. May the time soon arrive when anatomy and physiology will constitute part of a liberal education, quite as essential as Geography, Grammar, Latin, Greek, or Astronomy! This knowledge alone can give a clear conception of the fixed laws of organic action, and remove that superstition still lingering in every community which in former times was the basis of belief in witchcraft and sorcery. What system of quackery is too absurd to find believers in the popular mind? Ignorance and superstition have always been correlative. In the darkness of midnight, tombstones and cobwebs become ghosts and hobgoblins; but the light of day dispels the illusion. As nurses amuse children with fairy tales, and frighten them with ghost

stories, so quackery has its influence through the credulity of ignorance. Who would not laugh for instance, if, when a steam-boat suddenly strikes a bar and is aground, the passengers, who know little of the machinery, structure or management of the boat, or of the character of the particular difficulty, should volunteer their advice and suggestions? I think I hear one remark,—perhaps a lady: I was on a boat *once* before when she ran aground just as this did, they then did so and so; now if they would only follow my suggestions and do the same thing, we would soon get her off. Another says: I have been in Mexico, South America, and in the mountains among the Indians of the rudest tribes, and from these I learned the best method of getting steam-boats off of bars. Another says: I know nothing of how it is done more than you, but I have the magic power by certain passes and motions of relieving steam-boats from every difficulty to which they are subject. Another says: I have a principle applicable to all cases; just let them put on steam enough, and I will insure motion. And I can imagine one even presumptuous enough to say: The old captain and officers, whose actions are guided by the particular indications derived from a knowledge of the condition of things present, are all wrong; the true guide is not this knowledge, but "*similia similibus curantur*;"—now if you can only find out what is capable of producing a state of things like the present, and will use that in infinitesimally small doses, the difficulty will be removed like magic.—Farcies indefinitely more ridiculous than this, though awfully serious to those upon whom they are played, are acted every day in our midst as a consequence of that superstition which only a more general knowledge of God's organic laws for the preservation of health and removal of disease, can dispel. If your house is on fire, in the name of Heaven throw on water; God's immutable laws are not to be trifled with by man. As intelligent beings, we may take advantage of these laws for the accomplishment of our objects; but never can we set them at defiance in the living organism more than in inorganic nature.

Flee the burning wreck, or you will be consumed in the flames—if your knowledge of the laws of Nature direct not your action, the fire will care little whether you be a human being or a lifeless door-post; the burning body will be but

fuel for the flame, to augment the heat. Preachers, lawyers, congressmen, merchants, and ladies too, are seen flocking to the office of a man who pretends to cure all manner of disease by passes and charms. Now, it is so clear a proposition as to need only the statement to be received, that if any man can thus change the organic actions under abnormal conditions to a state of health, he can by the same power change them from a state of health to disease. This is an awfully solemn view of the subject. Do you not see here partially slumbering in our most influential citizens, that same element of superstition which a little while ago manifested itself in the burning witches on the commons of Boston? It is this element of superstition which gives foothold to quackery in all its various forms,—it is this that neutralizes the force of the truth that man can relieve suffering and cure disease only by taking advantage of inexorable laws, and that without a knowledge of these laws he is worse than powerless. This source of error will remain till the young shall be instructed in the laws of organic action, which one would think quite as important as ancient mythology, or the languages and actions of the Greeks and Romans; and quite as wise even for a nation to take an interest in, as the exploration of the regions about the north pole or even the gold mines of California.

But if knowledge is the only guide to voluntary action, and if whatever is done without this guide is harm except by accident, the wisest of our profession should be diffident and modest because even of their limited insight into the laws of nature. But if the most learned in these laws have reason to be diffident, what is to be said of that old lady, who, moved by her natural impulses and kindness of heart, is ever going about among the sick, and, instead of doing what good she might according to her capacities, becomes a self-constituted doctor, unless indeed the attendant happen to be her own family physician to whom she *modestly* defers. I leave this question with you; I add no epithets—I know none sufficiently expressive. This lady is probably president of a society for the amelioration of the condition of the South Sea islanders, or Esquimaux Indians, while her children are left without instruction in those principles and motives which alone can secure *their* happiness in after life. And who would wonder if

her eldest son, moved too by *his* natural impulses, but not kindness of heart, should undertake the cure of disease for a business ; unwilling to devote that time to close study necessary for the legitimate business, he would likely deny the accumulated lore of our profession and build for himself a brazen calf, that the people who love new things and seek after strange gods, might worship. It is not an easy thing to start an entering wedge ; it will frequently rebound. The Esquimaux Indian or the South Sea Islander is little conscious of possibility of improvement, and he will repel the missionary ; so if you talk to the people of the necessity of a knowledge of the medical sciences, and remark upon the imposition of the quack, many will turn and rend you ; and our profession, always open to improvement, and, as history attests, ever the cradle in which every infant science has been rocked with the hope better to relieve suffering, is even accused of jealousy. You *cannot* remove the effect while ignorance exists ; if your acquaintance employ an empty pretender, you had as well leave him be : “ Ephraim is joined to his idols, let him alone.” Even the cobbler is not a cobbler by inspiration :

“ A man must serve his time to every trade,”
Save Physic—doctors, *some* are ready-made.

True worth is always modest and unostentatious. It is the boy who has never yet left his father’s domicile that imagines he occupies the centre of creation, and that his particular horizon is the boundary of the universe. As one ascends the hill of science, his field of vision enlarges, and as peak after peak is attained, each gives a higher point of view from which others appear still rising in the distance yet unexplored. Each successive peak affords a view more and more enchanting ; the desire to know increases with knowledge. The human mind is capable of indefinite expansion, and the field of science, though bounded on either side, is infinite. The wise often hesitate, but ignorance is presumptuous and never at a loss. Men there are who even offer plans for the creation of worlds, and not a few would suggest improvements in the present order of things. Ignorance alone prompts man to “ play such fantastic tricks before high heaven.” Man, whose capacities have as yet scarcely enabled him to obtain a glimpse of the intricacies with which things are effected in this world,

found created ready for him, to whose laws he, a creature, owes his being, would assume all knowledge; and, closing his eyes, he mistakes the dreamings and phantasms of his sleeping faculties for reality. The human mind is limited upon either side by narrow confines; but these are parallel, making the province of knowledge infinite in the legitimate direction. As thought precedes action, and knowledge successful action, human power is likewise limited:

"Remove yon skull from out the scatter'd heaps:
Is that a temple where a God may dwell?
Why ev'n the worm at last disdains her shatter'd cell!"

"Look on its broken arch, its ruin'd wall,
Its chambers desolate, and portals foul:
Yes, this was once Ambition's airy hall,
The dome of Thought, the palace of the Soul:
Behold, through each lack-lustre, eyeless hole,
The gay recess of Wisdom and of Wit,
And Passion's host, that never brook'd control:
Can all saint, sage, or sophist ever writ,
People this lonely tower, this tenement refit?"

Though man has not all power, he is not therefore impotent; though he has not all knowledge, he is not on that account imbecile. True, he cannot make one grain of corn, but he can plant it and water it; he cannot tell why oxygen unites chemically with carbon with the phenomena of heat, but he knows the fact, and can dig the coal from its bed and have a comfortable fire of a cold day. Though he have not ten talents, he can legitimately use and cultivate the five that he has. Man's sphere of action is definite, and fortunate is he who attempts not to cross the boundary, but keeps himself within his province. Are the boundaries to the human mind and to human power apparent when you consider this tenantless skull? The same boundaries extend through every thing in nature. The watch-maker can not create one atom of iron, nor yet can he tell why the steel spring recoils; *his* sphere of action is merely to determine such conditions by his knowledge of the laws of Nature so far as they pertain to his business, that these immutable laws shall work out his designs under the physical conditions determined by him for this special purpose. Neither Fulton nor Watt could produce steam by any effort of their minds, nor could they tell why water is expansible by heat; but they could determine

the conditions under which steam would be produced according to the eternal laws of God. Then they could adjust cylinders, pistons, valves, &c., so as through such physical conditions to avail themselves of these laws for the action of a powerful engine. Morse could not explain why the union of the poles occasions chemical action in the battery with electric phenomena, but he can so determine the conditions as to avail himself of these laws even for the communication of thought. To what subject soever you may turn your attention, you find the same limits to man's sphere of action; his power stops with the adoption of physical conditions by which he may take advantage of unvarying laws for the accomplishing of his ends. Would he cure disease? Here too his sphere is definite and likewise limited to modifying physical conditions. Are knowledge and a cultivated mind necessary for the adoption of the conditions of a telegraph, steam-engine or watch, and yet not necessary for the adoption of conditions for the cure of disease? Does the very difficulty of the problems in medicine, and the amount of time and study necessary to improve the mind sufficiently to solve them, obviate the necessity, and enable men to adopt means to cure disease without science and cultivated minds? What absurdities are often believed! If you throw boiling water upon the skin, the desquamation and subsequent inflammation are determined by the existing conditions; the physician may modify the conditions, and thus, through the organic laws, promote recovery. This is his legitimate business—here his usefulness stops. As the blister is occasioned by the application of boiling water, so every disease depends upon *some* change in the conditions of life. The art of healing is the art of promoting the return of normal conditions. While the efficacy of remedies is thus restricted, within these limits the physician may do much for the prevention of disease and the restoration of health. The human organism is so wonderfully devised, that it is able to preserve normal conditions under great external vicissitudes; and even more wonderful is its natural capacity to remove disorders and restore the healthy equilibrium, if only supplied with pure air, cold water, and wholesome food. Hence the conclusion is clear, that the condition of a patient is far better in the hands of a good nurse, who attends to the ventilation

and diet, and who keeps the tongue moistened with cold water, and soothes the troubled mind with her sympathies, than under the charge of a thoughtless and uncautious M.D. And the truth is the same if the good nurse should have a nominal appendage in the shape of an infinitesimal doctor, if he would only stick to his third triturations in the administration of his pills and powders. But good may be effected not only by the regulation of the air, water and diet, but by the use of means more directly to change the internal conditions and to modify the actions of organs. The physician cannot produce a single organic action, but, as in inorganic nature, he may modify conditions and thus promote recovery. The physician, therefore, is prepared for the duties of *his* profession upon precisely the same principles as men are prepared for any business whatever. There is no royal road to knowledge, and the mysteries of organic phenomena do not furnish the physician a short cut to wisdom or judicious action. But there are many short cuts to wealth; a man may even steal it, or murder for it, or, which is the same thing, he may tamper with human life under the pretext of relieving suffering, for it. Men there are who have even assumed the cloak of religion for gain, and shall we deny that there are men even in high places in *our* profession who resort to little things for personal favor, which would be a disgrace to a professed quack? "The laborer is worthy of his hire," but *for* hire an honorable man will never resort to any species of deception. If he be starving, he may take what will satisfy hunger, but he will do it openly, manly, and above-board.

The laws of life, including health and disease, are as constant and invariable as the laws of inorganic matter. There is no such thing as chance or accident in all the operations of nature. And nowhere throughout the domain of natural history do we with more wonder and admiration witness the supremacy of law, than in the phenomena of organized beings. As health is preserved, and disease cured, only by taking advantage of these laws, it is more important that the physician should be a scientific interpreter of phenomena, a deep thinker, a philosopher, than any other professional character whose duties are connected with our temporal relations. *First*, on account of the multiplicity of difficulties which present them-

selves, the number of circumstances and phenomena to be taken into consideration in the solution of every problem; *Second*, because of the value of that which is at stake—nothing less than the lives of our fellow-men; *Third*, on account of the fact that any mistake is irretrievable. The mathematician may discover his mistake and correct his error—the planets move on their regular course in spite of it; the wayfaring man may mistake his road, but he can retrace his steps, but the physician's mistake is irremediable;—

“If I quench thee, thou flaming minister,
I can again thy former light restore,
Should I repent me:—but once put out thine,
Thou cunning'st pattern of excelling nature,
I know not where is that Promethean heat,
That can thy light relume. When I pluck thy rose,
I cannot give it vital growth again;
It needs must wither.”

The land surveyor may be qualified for his business by a mere mechanical knowledge of some of the principal rules which he has committed to memory and made familiar by practicing a few examples, though entirely ignorant of the great principles from which the formulas have been deduced through which he arrives at the contents of land. But the art of healing is not to be hemmed in by any such rules or dogmas; the scientific physician cannot have his mind thus shackled by the iron fetters of mere routine. He must be acquainted with the foundation principles, from which he may for himself deduce rules and formulas applicable to every particular case. Every case which may be presented to you in your practice will be an independent problem, needing a special formula for its solution. As one face differs from another in form and expression, so diseases differ though called by the same name; hence the necessity of scientific knowledge and a well trained mind to determine appropriate remedies. It is a peculiarity of all the various schisms that they substitute some *system* as their guide, for this scientific knowledge and cultivation of mind. Men propose to cure disease by Turnbull's system, by Thompson's system, or by Hahnemann's system. The Yankees can put a block of wood into a machine and it will come out nutmegs; then we have sewing machines,

and machine poetry too ; but who would knowingly entrust his life in the hands of a machine doctor ? The nutmegs look well superficially ; but when you attempt to use them, your pudding is covered with sawdust. True, the land surveyor need not go further back than his formulas and tables of latitude and departure ; but the good physician must be as the mathematician who devises formulas and makes tables.

Blackstone says, wisely, and with his usual conciseness, that the greatness of a man does not consist in the number of his ideas, but in the relation of those he has. In these few words we have the essence of the distinction between erudition and knowledge—between mere information and the cultivation of mind which alone can render that information available for practical purposes. There is perhaps no word in our language more misunderstood than the term Practical. Look around you among your acquaintance in the ordinary pursuits of life, and who is the practical man ? who is he that adopts the best and most judicious means to accomplish his objects, and whose judgment is desired in matters of opinion ? It is not the man of erudition necessarily, but necessarily the man of strong common sense ; it is the man whose knowledge becomes foreknowledge through the relation of the ideas that he has. Hence this faculty of the mind needs especial cultivation for the judicious application of remedies for the cure of disease. All great men are necessarily self-made men, because this faculty upon which their greatness depends can be strengthened only by exercise in individual thought and in the habit of associating ideas so that the data in hand will spontaneously suggest ideas to direct. But the man of great erudition is necessarily a fool, if, in the acquisition of his information, he suffer this faculty to run to waste and die out for want of exercise. The boy who is forced to provide the ways and means is bound to think ; but the school boy is bound to commit to memory the thoughts and systems and formulas of others ; and for this he is rewarded, and for this praised as smart. This one may become perfectly saturated with erudition, so that if he only open his mouth learning will flow in a constant stream, but in action and in judgment he will be outstripped by others of far less lore, but who have not neglected

to improve that faculty by which knowledge is made available. No man can by any effort of his will call up ideas and thoughts, but to render information available the mind must be so trained, that the data in hand will spontaneously suggest thoughts and ideas through the laws of association, that our knowledge may be luminously spread out before the mind to guide action. Whatever therefore will train the mind to close thought, and cultivate the habit of associating the ideas we have so as to bear upon a given subject, is eminently practical. This alone renders knowledge available; and a young man whose mind is thus trained will gain more practical experience from one patient closely observed, than would another, of mere erudition, from a thousand.

There have been two great schools of philosophy—the Idealists and the Sensationalists; the one referring all our knowledge to the senses, the other to the mind through innate ideas. In science there have been two great epochs, the spirits of which partially represent these two schools. Prior to the time of Bacon, science was *mainly* pursued subjectively. The laws of nature were sought through workings of the human mind, and science necessarily consisted in conceptions of what might be rather than what is; of what is plausible rather than what is truth; of what is conceivable rather than what is actual. This is but an attempt on the part of finite man to substitute his inventive genius for the wisdom of the great Author of nature. It is apparent that we have not faculties to arrive at the knowledge of the laws of nature by such speculations. The order of things as presented in nature as a whole, is only one of many conceivable; hence any attempt to arrive at a knowledge of what is, from purely *a priori* considerations, must prove abortive. It is a comparatively easy thing to comprehend, for instance, the principles and mechanism of a steam engine now, if we study the machine itself; but with all our skill and ingenuity this was not invented till the middle of the eighteenth century. If such a machine as this remained uninvented till so recent a period, how utterly futile must any attempt to arrive at the principles and laws of the machinery of nature prove, other than that based upon the facts and phenomena as presented in her works! Since the

time of Bacon, however, the votaries to science have been becoming more and more *exclusively* practical sensationalists. Thus, men, like tides, pass from one extreme to another. The results of the old method proving *its* futility, the spirit of the last epoch has been to substitute the results of mere experiment for science—to place empiricism above philosophy; as if science consisted in the mere collection and classification of the results of observation and experiment! Hence the present is little less speculative and visionary than the former period. The collection and classification of facts are the necessary means, but not the ultimatum of science. Facts are the raw material of which the temple of science is to be constructed; they are the rough marble just from the quarry, needing the chisel of the sculptor before it can have expressive form; they are as the letters of the alphabet—but signs of ideas. The microscope and crucible have their uses, but can never substitute thought; the acorn is a condition, but it is not the noble oak of the forest. Before, they had thought without facts; now, relatively, we have facts without thought. But the arch of knowledge and science can be supported only by both conjointly. He alone is a practical man who thus joins the two. The strength of the arch depends upon the pillars that sustain it; but no arch whatever can be sustained by one pillar, how strong soever it may be. Give the facts of the present day to a Plato or Aristotle, and we can form no idea of what science would then become. The fall of an apple, the steam gushing from a tea-kettle, the jerking of a frog's leg, are insignificant phenomena to the common mind; but to the cultivated nothing is trivial,—the commonest phenomena suggest great principles which they but illustrate. How defective therefore is that education where the Memory is cultivated at the expense of the more important faculties of the Mind; where systems, rules, and formulas, are crammed in, rather than the mind led out and expanded in independent thought, reason and power. Is it not the great tendency of this age of young America, called practical, to anticipate the acquisition of useful knowledge by a short process; to lay aside individuality as a useless incumbrance and to substitute rules for thought? Young men thus educated are necessarily

most conceited and ridiculously presumptuous, because they measure all things by the systems they have committed to memory, and have mistaken for knowledge, because taught by their oracles: but the man of thought feels how little is known, and while he thinks, he is equally willing to let think, knowing that the pill that he gives will act according to the unvarying laws of nature without much regard to the systems of men.

Gentlemen, in taking leave of you, I would remark, be not overawed by great names; preserve sacred your individuality, and let truth and the laws of God be honored rather than the dogmas of men; leave arrogance to the weak and narrow-minded, and suppose not that dogmas and rules preclude the necessity of individual thought. Only those who mistake dogmas for knowledge are arrogant. During the early period of your professional life devote your leisure time to study and thought, and thus lay up treasures from which you may afterwards draw without exhausting, instead of giving yourselves up to those frivolous pursuits to which too many do, as if they sprang from the schools ready equipped as Pallas from the brain of Jupiter. Such a course will enable you to rise to a position you could never otherwise attain whatever may be your natural geniuses. You will prize it more—it will render you more real happiness in after-life than the money you would make in the same time were you immediately to get into a large practice. Think not to arrive at great and useful ends except by the route the laws of mind direct; there is no short process—and he who attempts one must fail;—

“What shapest thou here at the world? Tis shapen long ago;
Thy Maker shaped it, and thought it were best even so.
Thy lot is appointed, go follow its best;
Thy journey's begun, thou must move and not rest;
For sorrow and care can not alter thy case,
And running, not raging, will win thee the race.”

